

## SMBus Fan Control with 1°C Accurate Temperature Monitoring

### PRODUCT FEATURES

Data Brief

#### General Description

The EMC2101 is an SMBus 2.0 compliant, integrated fan control solution complete with two temperature monitors, one external and one internal. Each temperature channel has programmable high limits that can assert an interrupt.

The fan drive is selectable as a Pulse Width Modulator (PWM) or Linear (DAC) output. The fan control output, whether the PWM or DAC drive circuit, uses an eight position look-up table to allow the user to program the fan speed profile based on temperature. The DAC output ranges from 0V to  $V_{DD}$  with up to 6 bit resolution while the PWM output has a range of 0% to 100% with up to 64 steps.

The EMC2101 has an option to automatically upload the contents of an attached SMBus compatible EEPROM for auto-programming upon power up.

Advanced thermal sensing enables reduced validation and characterization time as well as accurately operating with smaller-geometry processors. Resistance Error Correction (REC) automatically corrects the offset errors of board trace and device resistance, up to 100Ω. Automatic Beta Compensation allows the user the flexibility to design applications that include processor substrate transistors.

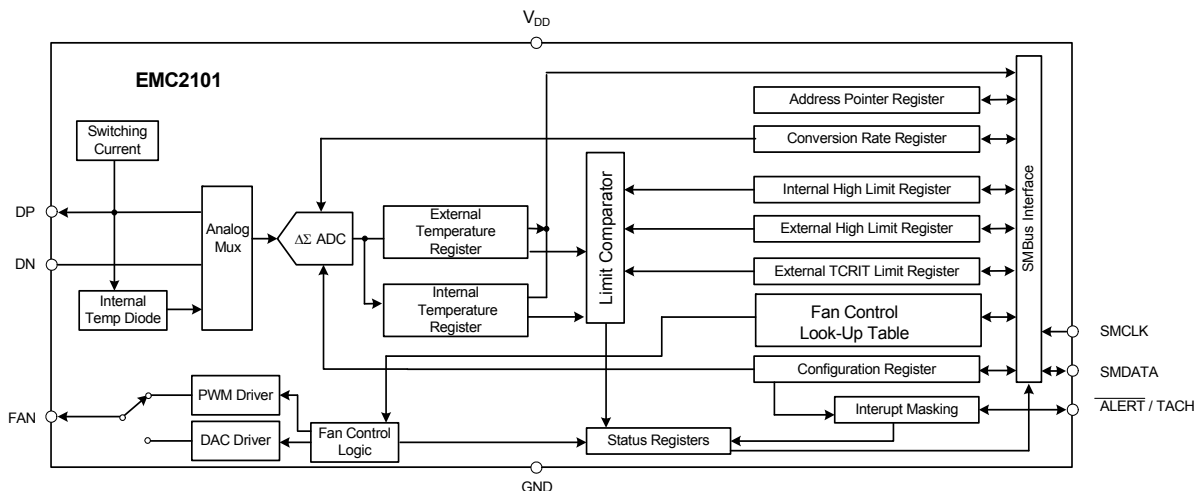
#### Features

- Automatic Beta Compensation
- Resistance Error Correction
- Self-programming with available SMBus compatible EEPROM
- Selectable PWM or DAC fan driver output
- Temperature Monitors
  - External channel  $\pm 1^\circ\text{C}$  accuracy
  - Internal channel  $\pm 2^\circ\text{C}$  accuracy
- 3.3 Volt Operation (5 Volt Tolerant Input Buffers)
- SMBus 2.0 Compliant Interface, supports TIMEOUT
- 8-Pin MSOP Lead-free RoHS Compliant Packages
- 8-Pin SOIC Lead-free RoHS Compliant Package

#### Applications

- Graphics Processors
- Embedded Application Fan Drive
- PWM Controller + Temp Sensor

#### Block Diagram



**ORDER NUMBERS:****EMC2101-ACZL-TR FOR 8-PIN, MSOP LEAD-FREE ROHS COMPLIANT PACKAGE****EMC2101-R-ACZL-TR FOR 8-PIN, MSOP LEAD-FREE ROHS COMPLIANT PACKAGE****EMC2101-ACZT-TR FOR 8-PIN, SOIC LEAD-FREE ROHS COMPLIANT PACKAGE****REEL SIZE IS 4,000 PIECES**

80 ARKAY DRIVE, HAUPPAUGE, NY 11788 (631) 435-6000, FAX (631) 273-3123

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# Package Outlines

Revision 2.54 (06-16-09)

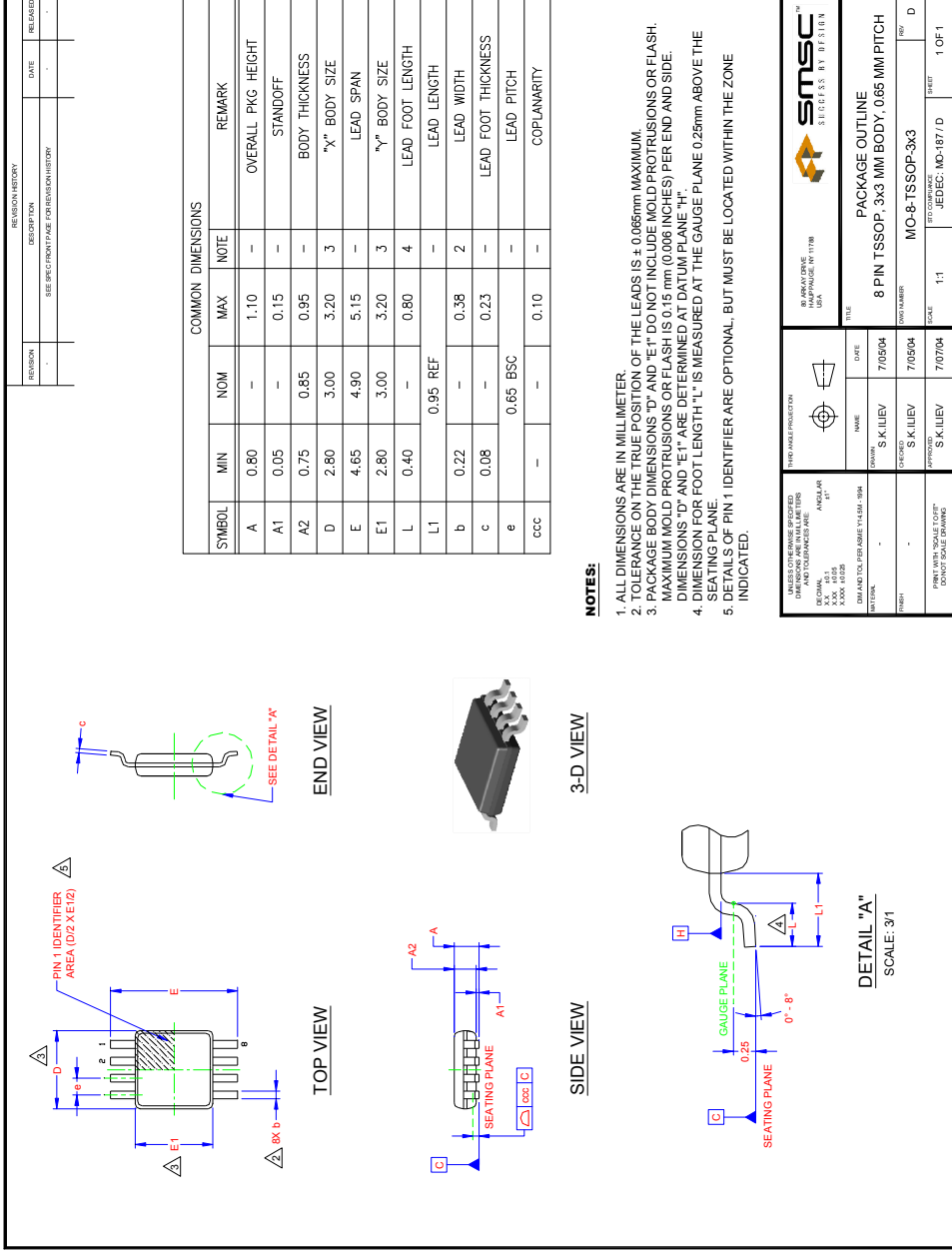


Figure 1 8-PIN MSOP / TSSOP Package

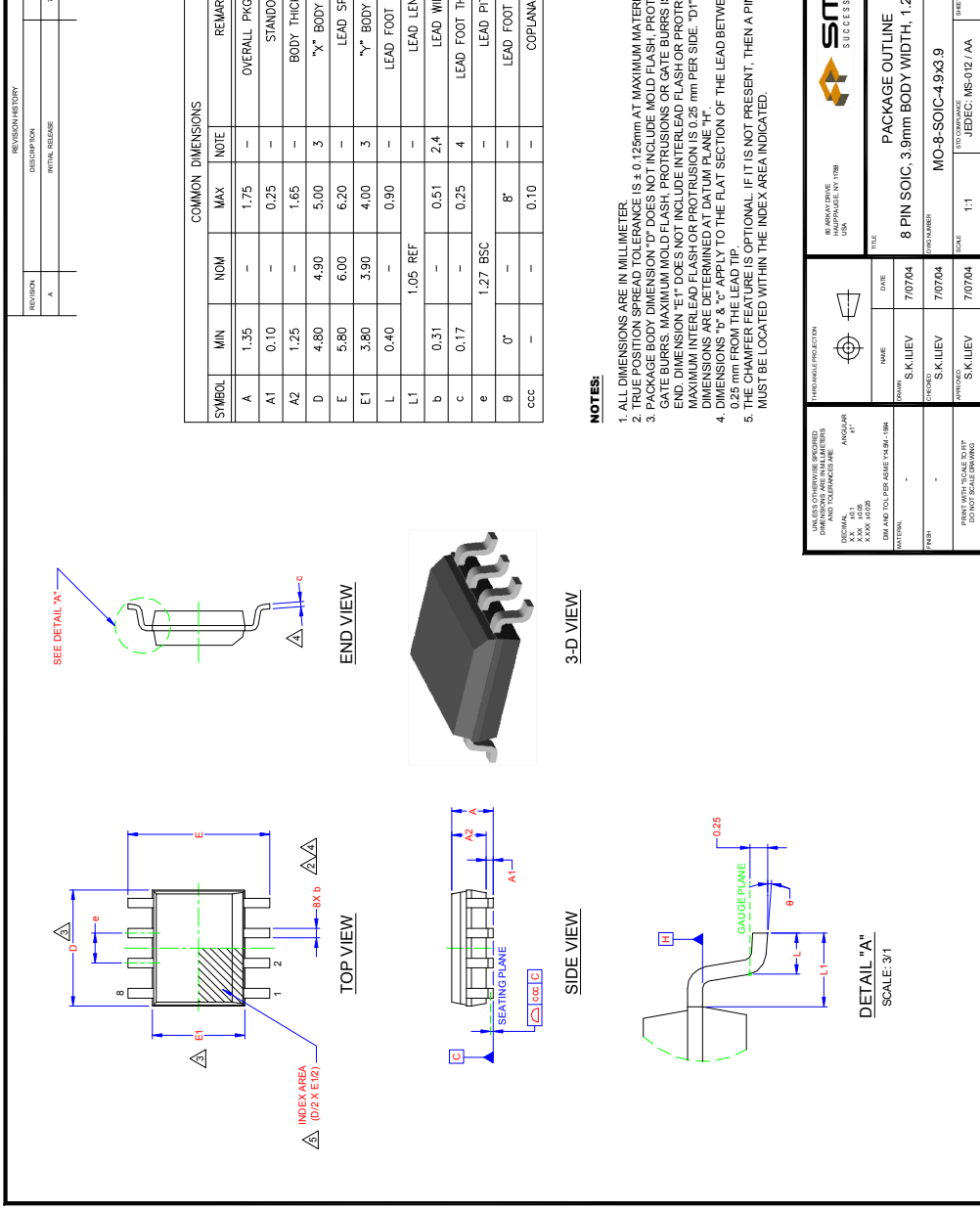


Figure 2 8-PIN SOIC Package

REVISION HISTORY	
REVISION	DESCRIPTION
A	INITIAL RELEASE

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN MILLIMETERS AND TOLERANCES ARE:		TYPICAL PROJECTION	
DECIMALS	ANGULAR	SYMBOL	DATE
XX.XX	°	S.K.I.I.E.V	7/0704
XXX	°	S.K.I.I.E.V	7/0704
XXX	°	S.K.I.I.E.V	7/0704
DRAWN TO SUPPLEMENT: YAMAHA-1964		TITLE	
PART NUMBER: 8 PIN SOIC, 3.9mm BODY WIDTH, 1.27mm LEAD PITCH		PACKAGE OUTLINE	
DRAWN BY: S.K.I.I.E.V		MO-8-SOIC-4.9x3.9	
CHECKED BY: S.K.I.I.E.V		SCALE: 1:1	
APPROVED BY: S.K.I.I.E.V		JEDEC: MS-012 / AA	

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- ✓ Alternative Solution
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